DUCK CREEK

Golden Anniversary Renovation

Removing a Straight Bypass Ditch and Integrating a Meandering Slough

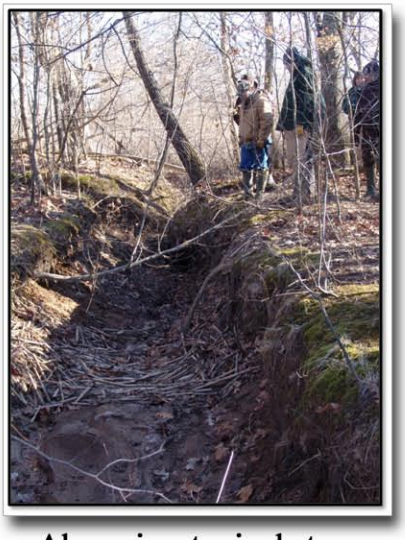
Ditches are often necessary and help us get water on and off the landscape. On a managed wetland area these functions are important and do play an important role in our water management. However, there are some issues with an average ditch that reduce and constrain the benefits to wildlife. The singular purpose of a typical ditch is to get water off the landscape as quickly as possible. A straight channel promotes high water velocities which encourages erosion and entrenchment of the bed level. This in turn lowers the surrounding water table and reduces the flood duration.

In contrast, a meandering channel has several different characteristics. The longer, serpentine channel requires water to slow down as it flows through the various bends and curves. This reduces the degree of channel entrenchment, thereby maintaining a higher water table. On a wetland area, maintaining soil moisture from the water table promotes wetland plants, even during a drought, like this year. Additionally, these channel characteristics extend the flood duration allowing a greater number of plants and animals to utilize the wet conditions and flood events.

The ditch between Unit A and B is a typical ditch. It routes water from the watershed above Duck Creek and sends it past us into Mingo's Ditch 2. Even before Duck Creek was developed, this water was simply diverted and passed by. Historically though, a slough meandered through the area and then separated into the basin's matrix of depressions and shallow channels.

We plan to utilize the water that has past us by for years and incorporate it with our renovated wetland impoundments. By removing the old ditch we will be able to reduce the negative consequences and increase the biological benefits by restoring a meandering slough. We will use this slough as a distribution channel, as well as a functioning intermittent stream. During the spring and summer water will flow down and through the unit. In the fall we will be able to block the channel, back water up, and spread flood waters out within the unit. In a dry year or early in the season, our existing pumps will be able to utilize the slough to distribute water to different parts of the unit. Currently blinds 15 and 16 are often flooded too deep early on in order to push water to flood the blinds on the east side. This slough/distribution channel eliminates this problem and better mimics the natural process of backwater flooding.

In a sense, this engineered "natural" design allows us to have our cake and eat it too. We will have the flexibility to manage water levels for waterfowl, as well as reap the benefits of a natural meandering stream that can be used occasionally to capture water.



Above is a typical steep sided, entrenched field ditch

Above is a fragmented section of a slough meandering through the north part of Pool 1